**Stochastic Optimization of a Vendor-Managed Inventory Problem in a Two-Echelon Supply Chain**

Authors: Bita Payami-Shabestari, Dariush Estami

Abstract:

The purpose of this paper is to develop a multi-product economic production quantity model under vendor management inventory policy and restrictions including limited warehouse space, budget, and number of orders, average shortage time and maximum permissible shortage. Since the "costs" cannot be predicted with certainty, it is assumed that data behave under uncertain environment. The problem is first formulated into the framework of a bi-objective of multi-product economic production quantity model. Then, the problem is solved with three multi-objective decision-making (MODM) methods. Then following this, three methods had been compared on information on the optimal value of the two objective functions and the central processing unit (CPU) time with the statistical analysis method and the multi-attribute decision-making (MADM). The results are compared with statistical analysis method and the MADM. The results of the study demonstrate that augmented-constraint, in terms of optimal value of the two objective functions and the CPU time perform better than global criteria, and goal programming. Sensitivity analysis is done to illustrate the effect of parameter variations on the optimal solution. The contribution of this research is the use of random costs data in developing a multi-product economic production quantity model under vendor management inventory policy with several constraints.

Keywords: Supply Chain Management, economic production quantity, random cost, vendor-managed Inventory

**Maternal Health Outcome and Economic Growth in Sub-Saharan Africa: A Dynamic Panel Analysis**

Authors: Okwun Frank

Abstract:

Maternal health outcome is one of the major population development challenges in Sub-Saharan Africa. The region has the highest maternal mortality ratio, despite the progressive economic growth in the region during the global economic crisis. It has been hypothesized that increase in economic growth will reduce the level of maternal mortality. The purpose of this study is to investigate the existence of the negative relationship between health outcome proxy by maternal mortality ratio and economic growth in Sub-Saharan Africa. The study used the Pooled Mean Group estimator of ARDL Autoregressive Distributed Lag (ARDL) and the Kao test for cointegration to examine the short-run and long-run relationship between maternal mortality and economic growth. The results of the cointegration test showed the existence of a long-run relationship between the variables considered for the study. The long-run result of the Pooled Mean group estimates confirmed the hypothesis of an inverse relationship between maternal health outcome proxy by maternal mortality ratio and economic growth proxy by Gross Domestic Product (GDP) per capita. Thus, increasing economic growth by investing in the health care systems to reduce pregnancy and childbirth complications will help reduce maternal mortality in the sub-region.

Keywords: Economic growth, Sub-Saharan Africa, maternal mortality, pool mean group

**Women’s Employment Issues in Georgia and Solutions Based on European Experience**

Authors: E. Kharashvili, N. Sagarebshvilli, N. Damerla, M. Sagharelshvili

Abstract:

Women's Employment is one of the most important issues in the global economy. The article discusses the stated topic in Georgia, through historical context, Soviet experience, and modern perspectives. The paper discusses segmentation in terms of employment and related problems. Based on statistical analysis, women's unemployment rate and its factors are analyzed. The level of employment of women in Transcaucasia (Georgia, Armenia, and Azerbaijan) is discussed and is compared with Baltic countries (Lithuania, Latvia, and Estonia). The solution to the problem of women's employment in Georgia and the European experience are considered.
World Academy of Science, Engineering and Technology
[Economics and Management Engineering]
Online ISSN : 1307-6892

Stochastic Optimization of a Vendor-Managed Inventory Problem in a Two-Echelon Supply Chain

Authors: Bita Payami-Shabestari, Dariush Eslami

Abstract:
The purpose of this paper is to develop a multi-product economic production quantity model under vendor management inventory policy and restrictions including limited warehouse space, budget, and number of orders, average shortage time and maximum permissible shortage. Since the "costs" cannot be predicted with certainty, it is assumed that data behave under uncertain environment. The problem is first formulated into the framework of a bi-objective of multi-product economic production quantity model. Then, the problem is solved with three multi-objective decision-making (MODM) methods. Then following this, three methods had been compared on information on the optimal value of the two objective functions and the central processing unit (CPU) time with the statistical analysis method and the multi-attribute decision-making (MADM). The results are compared with statistical analysis method and the MADM. The results of the study demonstrate that augmented-constraint in terms of optimal value of the two objective functions and the CPU time perform better than global criteria, and goal programming. Sensitivity analysis is done to illustrate the effect of parameter variations on the optimal solution. The contribution of this research is the use of random costs data in developing a multi-product economic production quantity model under vendor management inventory policy with several constraints.

Keywords: Supply Chain Management, economic production quantity, random cost, vendor-managed inventory

Maternal Health Outcome and Economic Growth in Sub-Saharan Africa: A Dynamic Panel Analysis

Authors: Okwan Frank

Abstract:
Maternal health outcome is one of the major population development challenges in Sub-Saharan Africa. The region has the highest maternal mortality ratio, despite the progressive economic growth in the region during the global economic crisis. It has been hypothesized that increase in economic growth will reduce the level of maternal mortality. The purpose of this study is to investigate the existence of the negative relationship between health outcome proxy by maternal mortality ratio and economic growth in Sub-Saharan Africa. The study used the Pooled Mean Group estimator of ARDL Autoregressive Distributed Lag (ARDL) and the Kao test for cointegration to examine the short-run and long-run relationship between maternal mortality and economic growth. The results of the cointegration test showed the existence of a long-run relationship between the variables considered for the study. The long-run result of the Pooled Mean group estimates confirmed the hypothesis of an inverse relationship between maternal health outcome proxy by maternal mortality ratio and economic growth proxy by Gross Domestic Product (GDP) per capita. Thus increasing economic growth by investing in the health care systems to reduce pregnancy and childbirth complications will help reduce maternal mortality in the sub-region.

Keywords: Economic growth, Sub-Saharan Africa, maternal mortality, pool mean group

Women's Employment Issues in Georgia and Solutions Based on European Experience

Authors: E. Kharaishvili, N. Sagareishvili, N. Domenia, M. Saghareishvili

Abstract:
Women's Employment is one of the most important issues in the global economy. The article discusses the stated topic in Georgia, through historical content, Soviet experience, and modern perspectives. The paper discusses segmentation in terms of employment and related problems. Based on statistical analysis, women's unemployment rate and its factors are analyzed. The level of employment of women in Transcaucasia (Georgia, Armenia, and Azerbaijan) is discussed and is compared with Baltic countries (Lithuania, Latvia, and Estonia). The study analyzes women's level of development, according to the average age of marriage and migration level. The focus is on Georgia’s Association Agreement with the EU in 2014, which includes economic, social, trade and political issues. One part of it is gender equality at workplaces. According to the research, the average monthly remuneration of women managers in the financial and insurance sector equalled to 1044.6 Georgian Lari, while in overall business sector average monthly remuneration equaled to 961.1 GEL. Average salaries are increasing; however, the employment rate remains problematic. For example, in 2017, 74.6% of men and 50.8% of women were employed from a total workforce. It is also interesting that the proportion of men and women at managerial positions is 29% (women) to 71% (men). Based on the results, the main recommendation for government and civil society is to consider women as a part of the country’s economic development. In this aspect, the experience of developed countries should be considered. It is important to create additional jobs in urban or rural areas and help migrant women return and use their working resources properly.

**Keywords:** employment of women, segregation in terms of employment, women's employment level in Transcaucasia, migration level

---

**Authors:** Kerstin Grunden, Ann Svensson, Berit Forsman, Christina Karlsson, Ayman Obeid

**Abstract:**

The research question of the article is to explore whether the dialogue meetings method could be relevant for reflective learning among researchers and practitioners when welfare technology should be implemented in municipalities, or not. A testbed was planned to be implemented in a retirement home in a Swedish municipality, and the practitioners worked with a pre-study of that testbed. In the article, the dialogue between the researchers and the practitioners in the dialogue meetings is described and analyzed. The potential of dialogue meetings as an arena for learning and reflection among researchers and practitioners is discussed. The research methodology approach is participatory action research with mixed methods (dialogue meetings, focus groups, participant observations). The main findings from the dialogue meetings were that the researchers learned more about the use of traditional research methods, and the practitioners learned more about how they could improve their use of the methods to facilitate change processes in their organization. These findings have the potential both for the researchers and the practitioners to result in more relevant use of research methods in change processes in organizations. It is concluded that dialogue meetings could be relevant for reflective learning among researchers and practitioners when welfare technology should be implemented in a health care organization.

**Keywords:** implementation, Welfare Technology, reflection, participatory action research, dialogue meetings, test bed

---

**Authors:** Beata Wentura-Dudek

**Abstract:**

In the United States in 2007-2010 before the crisis, the US labour market policy focused mainly on providing residents with unemployment insurance, after the recession this policy changed. The aim of the article was to present quantitative research presenting the most effective labor market instruments contributing to reducing unemployment during the crisis in the USA. The article presents research based on the analysis of available documents and statistical data. The results of the conducted research show that the most effective forms of counteracting unemployment at that time were: direct job creation, job search assistance, subsidized employment, training and employment promotion using new technologies, including social media.

**Keywords:** Social Media, training, lifelong learning, Unemployment, Tax, Financial Crisis, Companies, labour market, United States, job creation, employment promotion, employment agencies, job search assistance, subsidized employment
Machine Learning Techniques in Bank Credit Analysis

Authors: Fernanda M. Assef, Maria Teresinha A. Steiner

Abstract:

The aim of this paper is to compare and discuss better classifier algorithm options for credit risk assessment by applying different Machine Learning techniques. Using records from a Brazilian financial institution, this study uses a database of 5,432 companies that are clients of the bank, where 2,600 clients are classified as non-defaulters, 1,551 are classified as defaulters and 1,281 are temporarily defaulters, meaning that the clients are overdue on their payments for up 180 days. For each case, a total of 15 attributes was considered for a one-against-all assessment using four different techniques: Artificial Neural Networks Multilayer Perceptron (ANN-MLP), Artificial Neural Networks Radial Basis Functions (ANN-RBF), Logistic Regression (LR) and finally Support Vector Machines (SVM). For each method, different parameters were analyzed in order to obtain different results when the best of each technique was compared. Initially the data were coded in thermometer code (numerical attributes) or dummy coding (for nominal attributes). The methods were then evaluated for each parameter and the best result of each technique was compared in terms of accuracy, false positives, false negatives, true positives and true negatives. This comparison showed that the best method, in terms of accuracy, was ANN-RBF (79.20% for non-defaulter classification, 97.74% for defaulters and 75.37% for the temporarily defaulter classification). However, the best accuracy does not always represent the best technique. For instance, on the classification of temporarily defaulters, this technique, in terms of false positives, was surpassed by SVM, which had the lowest rate (0.07%) of false positive classifications. All these intrinsic details are discussed considering the results found, and an overview of what was presented is shown in the conclusion of this study.

Keywords: Artificial Neural Networks, Machine Learning, Support Vector Machines, Logistic Regression, credit risk assessment, ANNs, Classifier algorithms

Perceived Risks in Business-to-Consumer Online Contracts: An Empirical Study in Saudi Arabia

Authors: Shaya Alshahrani

Abstract:

Perceived risks play a major role in consumer intentions, behaviors, attitudes, and decisions about online shopping in the KSA. This paper investigates the influence of six perceived risk dimensions on Saudi consumers: product risk, information risk, financial risk, privacy and security risk, delivery risk, and terms and conditions risk empirically. To ensure the success of this study, a random survey was distributed to reflect the consumers' perceived risk and to enable the generalization of the results. Data were collected from 323 respondents in the Kingdom of Saudi Arabia (KSA): 50 who had never shopped online and 273 who had done so. The results indicated that all six risks influenced the respondents’ perceptions of online shopping. The non-online shoppers perceived financial and delivery risks as the most significant barriers to online shopping. This was followed closely by performance, information, and privacy and security risks. Terms and conditions were perceived as less significant. The online consumers considered delivery and performance risks to be the most significant influences on internet shopping. This was followed closely by information and terms and conditions. Financial and privacy and security risks were perceived as less significant. This paper argues that introducing adequate legal solutions to addressing related problems arising from this study is an urgent need. This may enhance consumer trust in the KSA online market, increase consumers' intentions regarding online shopping, and improve consumer protection.

Keywords: E-Commerce, Saudi Arabia, consumer protection, Online shopping, online contracts, perceived risk

A Case Study on Barriers in Total Productive Maintenance Implementation in the Abu Dhabi Power Industry

Authors: A. Alseiari, P. Farrell

Abstract:

Maintenance has evolved into an imperative function, and contributes significantly to efficient and effective equipment performance. Total Productive Maintenance (TPM) is an ideal approach to support the development and implementation of operation performance improvement. It systematically aims to understand the function of equipment, the service quality relationship with equipment and the probable critical equipment failure conditions. Implementation of TPM programmes need strategic planning and there has been little
research applied in this area within Middle-East power plants. In the power sector of Abu Dhabi, technologically and strategically, the power industry is extremely important, and it thus needs effective and efficient equipment management support. The aim of this paper is to investigate barriers to successful TPM implementation in the Abu Dhabi power industry. The study has been conducted in the context of a leading power company in the UAE. Semi-structured interviews were conducted with 16 employees, including maintenance and operation staff, and senior managers. The findings of this research identified seven key barriers, thus: managerial; organisational; cultural; financial; educational; communications; and auditing. With respect to the understanding of these barriers and obstacles in TPM implementation, the findings can contribute towards improved equipment operations and maintenance in power organisations.

Keywords: critical success factors, organisational culture, Abu Dhabi Power Industry, TPM implementation, key barriers

A Robust Optimization Method for Service Quality Improvement in Health Care Systems under Budget Uncertainty

Authors: S. Ebrahimi, H. Ashrafi, H. Kamalzadeh

Abstract:

With the development of business competition, it is important for healthcare providers to improve their service qualities. In order to improve service quality of a clinic, four important dimensions are defined: tangibles, responsiveness, empathy, and reliability. Moreover, there are several service stages in hospitals such as financial screening and examination. One of the most challenging limitations for improving service quality is budget which impressively affects the service quality. In this paper, we present an approach to address budget uncertainty and provide guidelines for service resource allocation. In this paper, a service quality improvement approach is proposed which can be adopted to multistage service processes to improve service quality, while controlling the costs. A multi-objective function based on the importance of each area and dimension is defined to link operational variables to service quality dimensions. The results demonstrate that our approach is not ultra-conservative and it shows the actual condition very well. Moreover, it is shown that different strategies can affect the number of employees in different stages.

Keywords: Robust Optimization, budget uncertainty, service quality assessment, healthcare resource allocation

Critical Psychosocial Risk Treatment for Engineers and Technicians

Authors: R. Berglund, T. Backström, M. Bellgran

Abstract:

This study explores how management addresses psychosocial risks in seven teams of engineers and technicians in the midst of the fourth industrial revolution. The sample is from an ongoing quasi-experiment about psychosocial risk management in a manufacturing company in Sweden. Each of the seven teams belongs to one of two clusters: a positive cluster or a negative cluster. The positive cluster reports a significantly positive change in psychosocial risk levels between two time-points and the negative cluster reports a significantly negative change. The data are collected using semi-structured interviews. The results of the computer aided thematic analysis show that there are more differences than similarities when comparing the risk treatment actions taken between the two clusters. Findings show that the managers in the positive cluster use more enabling actions that foster and support formal and informal relationship building. In contrast, managers that use less enabling actions hinder the development of positive group processes and contribute negative changes in psychosocial risk levels. This exploratory study sheds some light on how management can influence significant positive and negative changes in psychosocial risk levels during a risk management process.

Keywords: Risk management, psychosocial, group process model, risk treatment
The profusion of studies relating to the concept of organizational learning shows the importance that has been given to this concept in the management sciences. A few years ago, companies leaned towards ISO 9001 certification; this requires the implementation of the quality management system (QMS). In order for this objective to be achieved, companies must have a set of skills, which pushes them to develop learning through continuous training. The results of empirical research have shown that implementation of the QMS in the company promotes the development of learning. It should also be noted that several types of learning are developed in this sense. Given the nature of skills development is normative in the context of the quality demarche, companies are obliged to qualify and improve the skills of their human resources. Continuous training is the keystone to develop the necessary learning. To carry out continuous training, companies need to be able to identify their real needs by developing training plans based on well-defined engineering. The training process goes obviously through several stages. Initially, training has a general aspect, that is to say, it focuses on topics and actions of a general nature. Subsequently, this is done in a more targeted and more precise way to accompany the evolution of the QMS and also to make the changes decided each time (change of working method, change of practices, change of objectives, change of mentality, etc.). To answer our problematic we opted for the method of qualitative research. It should be noted that the case study method crosses several data collection techniques to explain and understand a phenomenon. Three cases of companies were studied as part of this research work using different data collection techniques related to this method.

**Keywords:** Organizational learning, Skills Development, quality management system, continuous training, changing mentalities

**Abstract:**

The study aims to establish the virtual size and fit technology features to enhance fashion online retailing platforms, utilising digital human measurements to provide customised style and function to consumers. A few firms in the UK have launched advanced interactive fashion shopping domains for personalised shopping globally, aided by the latest internet technology. Virtual size and fit interfaces have a great potential to provide a personalised better-fitted garment to promote mass customisation globally. Made-to-measure clothing, consuming unstitched fabric is a common practice offered by fashion brands in Pakistan. This product is regarded as economical and sustainable to be utilised by consumers in Pakistan. Although the manual sizing system is practiced to sell garments online, virtual size and fit visualisation and recommendation technologies are uncommon in Pakistani fashion interfaces. A comparative assessment of Pakistani fashion brand websites and UK technology-driven fashion interfaces was conducted to highlight the vast potential of the virtual size and fit technology. The results indicated that web 2.0 technology adopted by Pakistani apparel brands has limited features, whereas companies practicing web 3.0 technology provide interactive online real-store shopping experience leading to enhanced customer satisfaction and globalisation of brands.

**Keywords:** E-Commerce, mass customisation, virtual size and fit, web 3.0 technology

**Authors:** Simeon Gill, Sadia Idrees, Gianpaolo Vignali

**Keywords:** E-Commerce, mass customisation, virtual size and fit, web 3.0 technology

**Abstract:**

Information and Communication Technology (ICT) has made information access easier and affordable. Academic research has also benefited from this, with online journals and academic resource readily available by the click of a button. However, there are limited ways of assessing and controlling the quality of the academic research mostly in public institution. Nigeria is the most populous country in Africa with a significant number of universities and young population. The quality of knowledge created by academic researchers, however, needs to be evaluated due to the high number of predatory journals published by academia. The purpose of this qualitative study is to look at the knowledge creation, acquisition, and assimilation process by academic researchers in public universities in Nigeria. Qualitative research will be carried out using in-depth interviews and observations. Academic researchers will be interviewed and absorptive capacity theory will be used as the theoretical framework to guide the research. The findings from this study should help understand the impact of ICT on the knowledge creation process in academic research and to understand how ICT can affect the quality of knowledge produced by researchers. The findings from this study should help add value to the existing body of knowledge on the quality of academic research especially in Africa where there is limited availability of quality academic research. The findings from this study should help add value to the existing body of knowledge on the quality of academic research especially in Africa where there is limited availability of quality academic research.
of knowledge on the quality of academic research, especially in Africa where there is limited availability of quality academic research. As this study is limited to Nigerian universities, the outcome may not be generalized to other developing countries.

**Keywords:** Knowledge Management, Academic Research, Research, Information and Communication Technology, knowledge creation, University

Understanding How Money Laundering and Financing of Terrorism Are Conducted through the Real Estate Sector in the Middle East and North Africa Region

**Authors:** Haytham Yassine

**Abstract:**

This research seeks to identify how money laundering activities are executed through the real estate sector. This article provides academics with literature on the topic and provides scholars, and practitioners with a better understanding of the risks and challenges involved. Data are gathered through survey in the Middle East and North Africa region and review of the available research. The results of the analysis will help identifying the factors attracting criminals to the real estate sector and develop an understanding of the methods used to launder illicit funds through this sector and the indicators of suspicion for reporting entities. Further analysis reveals the risks posed by money laundering and terrorist financing on the real estate sector and challenges facing states in this regard.

**Keywords:** Money Laundering, terrorism financing, Middle East and North Africa, real estate sector

Cultural Effects on the Performance of Non-Profit and For-Profit Microfinance Institutions

**Authors:** Patrick M. Stanton, William R. McCumber

**Abstract:**

Using a large dataset of more than 2,400 individual microfinance institutions (MFIs) from 120 countries from 1999 to 2016, this study finds that nearly half of the international MFIs operate as for-profit institutions. Formal institutions (business regulatory environment, property rights, social protection, and a developed financial sector) impact the likelihood of MFIs being for-profit across countries. Cultural differences across countries (power distance, individualism, masculinity, and indulgence) seem to be a factor in the legal status of the MFI (non-profit or for-profit). MFIs in countries with stronger formal institutions, a greater degree of power distance, and a higher degree of collectivism experience better financial and social performance.

**Keywords:** International Finance, non-profit, microfinance institutions, Hofstede cultural dimensions

The Strategic Engine Model: Redefined Strategy Structure, as per Market-and Resource-Based Theory Application, Tested in the Automotive Industry

**Authors:** Krassimir Todorov

**Abstract:**

The purpose of the paper is to redefine the levels of structure of corporate, business and functional strategies that were established over the past several decades, to a conceptual model, consisting of corporate, business and operations strategies, that are reinforced by functional strategies. We will propose a conceptual framework of different perspectives in the role of strategic operations as a separate strategic place and reposition the remaining functional strategies as supporting tools, existing at all three levels. The proposed model is called 'the strategic engine', since the mutual relationships of its ingredients are identical with main elements and working principle of the internal combustion engine. Based on theoretical essence, related to every strategic level, we will prove that the strategic engine model is useful for managers seeking to safeguard the competitive advantage of their companies. Each strategy level is researched through its basic elements. At the corporate level we examine the scope of firm's product, the vertical and geographical coverage. At the business level, the point of interest is limited to the SWOT analysis' basic elements. While at operations level, the key research issue relates to the scope of the following performance indicators: cost, quality, speed, flexibility and dependability. In this relationship, the paper provides a different view for the role of operations strategy within the overall strategy.
concept. We will prove that the theoretical essence of operations goes far beyond the scope of traditionally accepted business functions. Exploring the applications of Resource-based theory and Market-based theory within the strategic levels framework, we will prove that there is a logical consequence of the theoretical impact in corporate, business and operations strategy – at every strategic level, the validity of one theory is substituted to the level of the other. Practical application of the conceptual model is tested in automotive industry. Actually, the proposed theoretical concept is inspired by a leading global automotive group – Inchcape PLC, listed on the London Stock Exchange, and constituent of the FTSE 250 Index.

Keywords: Business Strategy, Corporate Strategy, Operations Strategy, functional strategies

---

### Risk Assessment of Building Information Modelling Adoption in Construction Projects

**Authors:** Amirhossein Karamoozian, Desheng Wu, Behzad Abbasnejad

**Abstract:**

Building information modelling (BIM) is a new technology to enhance the efficiency of project management in the construction industry. In addition to the potential benefits of this useful technology, there are various risks and obstacles to applying it in construction projects. In this study, a decision making approach is presented for risk assessment in BIM adoption in construction projects. Various risk factors of exerting BIM during different phases of the project lifecycle are identified with the help of Delphi method, experts’ opinions and related literature. Afterward, Shannon’s entropy and Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Situation) are applied to derive priorities of the identified risk factors. Results indicated that lack of knowledge between professional engineers about workflows in BIM and conflict of opinions between different stakeholders are the risk factors with the highest priority.

Keywords: Risk, bim, Construction Projects, fuzzy TOPSIS, Shannon's entropy

---

### Predicting the Success of Bank Telemarketing Using Artificial Neural Network

**Authors:** Mokrane Selma

**Abstract:**

The shift towards decision making (DM) based on artificial intelligence (AI) techniques will change the way in which consumer markets and our societies function. Through AI, predictive analytics is being used by businesses to identify these patterns and major trends with the objective to improve the DM and influence future business outcomes. This paper proposes an Artificial Neural Network (ANN) approach to predict the success of telemarketing calls for selling bank long-term deposits. To validate the proposed model, we use the bank marketing data of 41188 phone calls. The ANN attains 98.93% of accuracy which outperforms other conventional classifiers and confirms that it is a credible and valuable approach for telemarketing campaign managers.

Keywords: Artificial Intelligence, Decision Making, prediction, Artificial Neural Network, bank telemarketing

---

### A Multiple Linear Regression Model to Predict the Price of Cement in Nigeria

**Authors:** Kenneth M. Oba

**Abstract:**

This study investigated factors affecting the price of cement in Nigeria, and developed a mathematical model that can predict future cement prices. Cement is key in the Nigerian construction industry. The changes in price caused by certain factors could affect economic and infrastructural development; hence there is need for proper proactive planning. Secondary data were collected from published information on cement between 2014 and 2019. In addition, questionnaires were sent to some domestic cement retailers in Port Harcourt in Nigeria, to obtain the actual prices of cement between the same periods. The study revealed that the most critical factors affecting the price of cement in Nigeria are inflation rate, population growth rate, and Gross Domestic Product (GDP) growth rate. With the use of data from United Nations, International Monetary Fund, and Central Bank of Nigeria databases, amongst others, a
Multiple Linear Regression model was formulated. The model was used to predict the price of cement for 2020-2025. The model was then tested with 95% confidence level, using a two-tailed t-test and an F-test, resulting in an $R^2$ of 0.8428 and $R^2 \text{(adj)}$ of 0.6069. The results of the tests and the correlation factors confirm the model to be fit and adequate. This study will equip researchers and stakeholders in the construction industry with information for planning, monitoring, and management of present and future construction projects that involve the use of cement.

**Keywords:** multiple linear regression model, Nigerian construction industry, price prediction, Cement price

---

Corporate Social Responsibility Disclosure, Tax Aggressiveness and Sustainability Report Assurance: Evidence from Thailand

**Authors:** Eko Budi Santoso, Kazia Laturette, Stanislaus Adnanto Mastan

**Abstract:**

This study aims to examine the association between disclosure of social responsibility and tax aggressiveness in developing countries, namely Thailand. This is due to the increasing trend of disclosure of social responsibility in developing countries, even though this disclosure of information is still voluntary. On the other hand, developing countries have low taxation rate and investor protection infrastructures that allow the disclosure of social responsibility to be used opportunistically as a tool to fool the attainment of interests. This study also examines the role of assurance on the association between corporate social responsibility disclosure and tax aggressiveness. The assurance aims to provide confidence that the disclosure of social responsibility by the company is valid. This research builds an index to measure the disclosure of social responsibility based on the rules issued by the innovative Global Reporting. The results of the study are based on a sample of publicly traded companies in Thailand, which showed a positive association between disclosure of corporate social responsibility and tax aggressiveness, but it was further discovered that these results were mitigated by the existence of assurance against disclosure of corporate social responsibility. The results of this study indicate that the disclosure of corporate social responsibility can show that the company cares about the issue of social responsibility but does not automatically make the company as one that holds ethical values in its business practices.

**Keywords:** Business Ethics, corporate social responsibility disclosure, tax aggressiveness, sustainability assurance

---

Providing a Practical Model to Reduce Maintenance Costs: A Case Study in Golgohar Company

**Authors:** Jalal Soleimannejad, Iman Atighi, Saeid Moradpour, Ahmad Akbarinasab

**Abstract:**

In the past, we could increase profit by increasing product prices. But in the new decade, a competitive market does not let us to increase profit with increase prices. Therefore, the only way to increase profit will be reduce costs. A significant percentage of production costs are the maintenance costs, and analysis of these costs could achieve more profit. Most maintenance strategies such as RCM (Reliability-Center-Maintenance), TPM (Total Productivity Maintenance), PM (Preventive Maintenance) etc., are trying to reduce maintenance costs. In this paper, decreasing the maintenance costs of Concentration Plant of Golgohar Company (GEG) was examined by using of MTBF (Mean Time between Failures) and MTTR (Mean Time to Repair) analyses. These analyses showed that instead of buying new machines and increasing costs in order to promote capacity, the improving of MTBF and MTTR indexes would solve capacity problems in the best way and decrease costs.

**Keywords:** Maintainability, maintenance costs, golgohar iron ore mining & industrial company, reliability-center-maintenance

---

Performance Comparison of Cooperative Banks in the EU, USA and Canada

**Authors:** Matej Kuc

**Abstract:**

This paper compares different types of profitability measures of cooperative banks from two developed regions: the European Union and the United States of America together with Canada. We created balanced dataset of more than 200 cooperative banks covering...
Incorporating Circular Economy into Passive Design Strategies in Tropical Nigeria

Authors: Noah G. Akhimien, Eshrar Latif

Abstract:

The natural environment is in need for an urgent rescue due to dilapidation and recession of resources. Passive design strategies have proven to be one of the effective ways to reduce CO₂ emissions and to improve building performance. On the other hand, there is a huge drop in material availability due to poor recycling culture. Consequently, building waste pose environmental hazard due to unrecycled building materials from construction and deconstruction. Buildings are seen to be material banks for a circular economy, therefore incorporating circular economy into passive housing will not only save guide the climate but also improve resource efficiency. The study focuses on incorporating a circular economy in passive design strategies for an affordable energy and resource efficient residential building in Nigeria. Carbon dioxide (CO₂) concentration is still on the increase as buildings are responsible for a significant amount of this emission globally. Therefore, prompt measures need to be taken to combat the effect of global warming and associated threats. Nigeria is rapidly growing in human population, resources on the other hand have receded greatly, and there is an abrupt need for recycling even in the built environment. It is necessary that Nigeria responds to these challenges effectively and efficiently considering building resource and energy. Passive design strategies were assessed using simulations to obtain qualitative and quantitative data which were inferred to case studies as it relates to the Nigeria climate. Building materials were analysed using the ReSOLVE model in order to explore possible recycling phase. This provided relevant information and strategies to illustrate the possibility of circular economy in passive buildings. The study offers an alternative approach, as it is the general principle for the reworking of an economy on ecological lines in passive housing and by closing material loops in circular economy.

Keywords: Building, Sustainability, Efficiency, Circular economy, passive design

A Corpus-Based Approach to Understanding Market Access in Fisheries and Aquaculture: A Systematic Literature Review

Authors: Cheryl Marie Cordeiro

Abstract:

Although fisheries and aquaculture studies might seem marginal to international business (IB) studies in general, fisheries and aquaculture IB (FAIB) management is currently facing increasing pressure to meet global demand and consumption for fish in the next coming decades. In part address to this challenge, the purpose of this systematic review of literature (SLR) study is to investigate the use of the term ‘market access’ in its context of use in the generic literature and business sector discourse, in comparison to the more specific literature and discourse in fisheries, aquaculture and seafood. This SLR aims to uncover the knowledge/interest gaps between the academic subject discourses and business sector practices. Corpus driven in methodology and using a triangulation method of three different text analysis software including AntConc, VOSviewer and Web of Science (WoS) analytics, the SLR results indicate a gap in conceptual knowledge and business practices in how ‘market access’ is conceived and used in the context of the pharmaceutical healthcare industry and FAIB research and practice. While it is acknowledged that the product orientation of different business sectors might differ, this SLR study works with the assumption that both business sectors are global in orientation. These business sectors are complex in their operations from product to market. This SLR suggests a conceptual model in understanding the challenges, the potential barriers as well as avenues for solutions to developing market access for FAIB.

Keywords: International Business, systematic literature review, Fisheries and Aquaculture, market access

The Governance of Islamic Banks in Morocco: Meaning, Strategic Vision and Purposes Attributed to the Governance System
Prioritization Assessment of Housing Development Risk Factors: A Fuzzy Hierarchical Process-Based Approach

Authors: Lalla Nezha Lakmiti, Abdelkahar Zahid

Abstract:
Due to the setbacks on the international scene and the wave of cacophonous financial scandals affecting large international groups, the new Islamic finance industry is not immune despite its initial resistance. The purpose of this paper is to understand and analyze the meaning of the Corporate Governance (CG) concept in Moroccan Islamic banking systems with specific reference to their institutions. The research objective is to identify also the path taken and adopted by these banks recently set up in Morocco. The foundation is rooted in shari'a, in particular, no stakeholder (the shareholding approach) must be harmed, and the ethical value is reflected into these parties' behavior. We chose a qualitative method, semi-structured interviews where six managers provided answers about their banking systems. Since these respondents held a senior position (directors) within their organizations, it is felt that they are well placed and have the necessary knowledge to provide us with information to answer the questions asked. The results identified the orientation of participating banks and assessing how governance works, while determining which party is favoured: shareholders, stakeholders or both. This study discusses the favorable condition to the harmonization of the regulations and therefore a better integration between Islamic finance and conventional ones in the economic context of Morocco.

Keywords: Corporate Governance, Stakeholders, shareholding, participating banks, and interests

Impact of Dynamic Capabilities on Knowledge Management Processes

Authors: Yusuf Garba Baba

Abstract:
The construction industry and housing subsector are fraught with risks that have the potential of negatively impacting on the achievement of project objectives. The success or otherwise of most construction projects depends to large extent on how well these risks have been managed. The recent paradigm shift by the subsector to use of formal risk management approach in contrast to hitherto developed rules of thumb means that risks must not only be identified but also properly assessed and responded to in a systematic manner. The study focused on identifying risks associated with housing development projects and prioritisation assessment of the identified risks in order to provide basis for informed decision. The study used a three-step identification framework: review of literature for similar projects, expert consultation and questionnaire based survey to identify potential risk factors. Delphi survey method was employed in carrying out the relative prioritization assessment of the risks factors using computer-based Analytical Hierarchical Process (AHP) software. The results show that 19 out of the 50 risks significantly impact on housing development projects. The study concludes that although significant numbers of risk factors have been identified as having relevance and impacting to housing construction projects, economic risk group and, in particular, ‘changes in demand for houses’ is prioritised by most developers as posing a threat to the achievement of their housing development objectives. Unless these risks are carefully managed, their effects will continue to impede success in these projects. The study recommends the adoption and use of the combination of multi-technique identification framework and AHP prioritization assessment methodology as a suitable model for the assessment of risks in housing development projects.

Keywords: Risk Assessment, Risk Identification, multi-criteria decision, analytical hierarchical process

Impact of Dynamic Capabilities on Knowledge Management Processes

Authors: Farzad Yavari, Fereydoun Ohadi

Abstract:
Today, with the development and growth of technology and extreme environmental changes, organizations need to identify opportunities and create creativity and innovation in order to be able to maintain or improve their position in competition with others. In this regard, it is necessary that the resources and assets of the organization are coordinated and reviewed in accordance with the orientation of the strategy. One of the competitive advantages of the present age is knowledge management, which is to equip the organization with the knowledge of the day and disseminate among employees and use it in the development of products and services. Therefore, in the forthcoming research, the impact of dynamic capabilities components (sense, seize, and reconfiguration) has been investigated on knowledge management processes (acquisition, integration and knowledge utilization) in the MAPNA Engineering and Construction Company using a field survey and applied research method. For this purpose, a questionnaire was filled

Authors: Nadezhda Kvatashidze

Abstract:

The International Accounting Standards Board updated the conceptual framework for financial reporting. The main reason behind it is to resolve the tasks of the accounting, which are caused by the market development and business-transactions of a new economic content. Also, the investors call for higher transparency of information and responsibility for the results in order to make a more accurate risk assessment and forecast. All these make it necessary to further develop the conceptual framework for financial reporting so that the users get useful information. The market development and certain shortcomings of the conceptual framework revealed in practice require its reconsideration and finding new solutions. Some issues and concepts, such as disclosure and supply of information, its qualitative characteristics, assessment, and measurement uncertainty had to be supplemented and perfected. The criteria of recognition of certain elements (assets and liabilities) of reporting had to be updated, too and all this is set out in the updated edition of the conceptual framework for financial reporting, a comprehensive collection of concepts underlying preparation of the financial statement. The main objective of conceptual framework revision is to improve financial reporting and development of clear concepts package. This will support International Accounting Standards Board (IASB) to set common "Approach & Reflection" for similar transactions on the basis of mutually accepted concepts. As a result, companies will be able to develop coherent accounting policies for those transactions or events that are occurred from particular deals to which no standard is used or when standard allows choice of accounting policy.

Keywords: Stewardship, Measurement Uncertainty, neutrality, prudence, conceptual framework, measurement basis

Multistage Data Envelopment Analysis Model for Malmquist Productivity Index Using Grey's System Theory to Evaluate Performance of Electric Power Supply Chain in Iran

Authors: Mesbaholdin Salami, Farzad Movahedi Sobhani, Mohammad Sadeq Ghazizadeh

Abstract:

Evaluation of organizational performance is among the most important measures that help organizations and entities continuously improve their efficiency. Organizations can use the existing data and results from the comparison of units under investigation to obtain an estimation of their performance. The Malmquist Productivity Index (MPI) is an important index in the evaluation of overall productivity, which considers technological developments and technical efficiency at the same time. This article proposed a model based on the multistage MPI, considering limited data (Grey's theory). This model can evaluate the performance of units using limited and uncertain data in a multistage process. It was applied by the electricity market manager to Iran's electric power supply chain (EPSC), which contains uncertain data, to evaluate the performance of its actors. Results from solving the model showed an improvement in the accuracy of future performance of the units under investigation, using the Grey's system theory. This model can be used in all case studies, in which MPI is used and there are limited or uncertain data.

Keywords: malmquist index, network data envelopment analysis, Grey's Theory, Iran electricity power chain, Charnes Cooper & Rhodes (CCR) Model

Management Directions towards Social Responsibility in Special Population Groups by Airport Enterprises: The Case of Autism

Authors: Nadezhda Kvatashidze, Mesbaholdin Salami, Farzad Movahedi Sobhani, Mohammad Sadeq Ghazizadeh

Abstract:

Evaluation of organizational performance is among the most important measures that help organizations and entities continuously improve their efficiency. Organizations can use the existing data and results from the comparison of units under investigation to obtain an estimation of their performance. The Malmquist Productivity Index (MPI) is an important index in the evaluation of overall productivity, which considers technological developments and technical efficiency at the same time. This article proposed a model based on the multistage MPI, considering limited data (Grey's theory). This model can evaluate the performance of units using limited and uncertain data in a multistage process. It was applied by the electricity market manager to Iran's electric power supply chain (EPSC), which contains uncertain data, to evaluate the performance of its actors. Results from solving the model showed an improvement in the accuracy of future performance of the units under investigation, using the Grey's system theory. This model can be used in all case studies, in which MPI is used and there are limited or uncertain data.

Keywords: malmquist index, network data envelopment analysis, Grey's Theory, Iran electricity power chain, Charnes Cooper & Rhodes (CCR) Model
Authors: Dimitrios J. Dimitriou, Maria F. Sartzetaki, Simoni K. Lintzerakou

Abstract:
Air transport links markets and individuals, promoting social and economic development. The review of management direction towards social responsibility and especially for the enhancement of passengers with autism is the key objective of this paper. According to a top-down approach, the key dimensions that affect the basic principles and directions of airport enterprises management towards social responsibility for the case of passengers with autism are presented. Conventional wisdom is to present actions undertaken in improving accessibility for special population groups and highlight the social dimension in the management of transport hubs. The target is to focus on transport hubs serving special groups of passengers such as passengers with autism and highlight good practices and motivate transport infrastructure management authorities and decision makers to promote the social footprint of transport. The highlights and key findings are essential for managers and decision makers to support actions and plans towards management of airport enterprises towards social responsibility, focusing on the case of passengers traveling with Autism Spectrum Disorder (ASD).

Keywords: Social Responsibility, special groups, airport enterprises
Corporate Social Responsibility Disclosure, Tax Aggressiveness and Sustainability Report Assurance: Evidence from Thailand

Eko Budi Santoso, Kazia Laturette, Stanislaus Adnanto Mastan

Abstract—This study aims to examine the association between disclosure of social responsibility and tax aggressiveness in developing countries, namely Thailand. This is due to the increasing trend of disclosure of social responsibility in developing countries, even though this disclosure of information is still voluntary. On the other hand, developing countries have low taxation rate and investor protection infrastructures that allow the disclosure of social responsibility to be used opportunistically as a tool to fool the attainment of interests. This study also examines the role of assurance on the association between corporate social responsibility disclosure and tax aggressiveness. The assurance aims to provide confidence that the disclosure of social responsibility by the company is valid. This research builds an index to measure the disclosure of social responsibility based on the rules issued by the innovative Global Reporting. The results of the study are based on a sample of publicly traded companies in Thailand, which showed a positive association between disclosure of corporate social responsibility and tax aggressiveness, but it was further discovered that these results were mitigated by the existence of assurance against disclosure of corporate social responsibility. The results of this study indicate that the disclosure of corporate social responsibility can show that the company cares about the issue of social responsibility but does not automatically make the company as one that holds ethical values in its business practices.

Keywords—Corporate Social Responsibility disclosure, tax aggressiveness, sustainability assurance, business ethics.

I. INTRODUCTION

The issue of social responsibility stems from the development of public awareness of the importance of the role of companies in society. This has led to the emergence of the triple bottom line concept [1] which states that companies, in conducting their business, should not only focus on one bottom line, which is profit (economic), but must also pay attention to the other bottom lines, which are the planet (environmental) and the people (social impact). The regulator then issued rules for companies to be actively involved in social responsibility activities. The company began to not only actively carry out social responsibility activities, but also express it as a form of disclosure as an accountability to the public. Non-governmental organizations such as Global Reporting Initiative publish guidelines and standards for disclosure of social responsibility even though such disclosures are still voluntary. The public then gives appreciation to companies that actively carry out corporate social responsibility and label the company as a company that behaves ethically in its business practices. The results of the study also show that companies that actively carry out and express social responsibility enjoy a positive impact with increasing company performance through sales growth, along with share price and company value increases because the company is considered to care about its social responsibility [2]-[7]. However, it also shows that the disclosure of social responsibility can be used as a tool to increase corporate profits which at some point will be contrary to ethical business principles. The results of other studies state that motivation in disclosing social responsibility is not always based on ethical behavior of the companies [8]-[10]. Furthermore, Sikka [11] stated that the company provided information that contained promises and achievements of the company in terms of social responsibility, but later the company proved to be manipulating taxation. This means that companies that are active in carrying out social responsibility cannot be categorized as companies that behave ethically in their business activities. Disclosure of social responsibility can be used by opportunistic managers as a tool to trick or distract stakeholders from the company's tax aggressiveness.

The results of studies on the relationship between disclosure of social responsibility and tax aggressiveness are inconclusive. References [12] and [13] gave negative results while [14] gave positive results. These results indicate there is a certain context that affects the relationship. This study uses assurance against social responsibility disclosure as a moderating variable in the relationship between social responsibility disclosure and tax aggressiveness. This research takes the context of Thailand as a developing country which on the one hand has a high dependency on taxes but the state income from the taxation sector is still low [15]. On the other hand, there is an increase in disclosure of social responsibility [16]. Developing countries are often dominated by opportunistic behavior of managers due to weak investor protection so that managers can use social responsibility disclosure as a tool to cover their opportunistic behavior. However, several researches in Thailand discover that corporate social responsibility practice is strongly based on ethical considerations [17], [18].
II. LITERATURE REVIEW

A. Disclosure of Social Responsibility

The basic idea of corporate social responsibility is an embodiment of the ethical business practices of the company [19], [20]. Companies that actively carry out social responsibility show that in an effort to improve the welfare of shareholders, the company also pays attention to the environment and the community. It also means that the company is responsible for having ethical business practices in the three bottom lines so transparency in financial reporting and taxation is part of corporate social responsibility [21], [22]. Social responsibility should cover all areas in the company including the financial side. This is in line with ethical theories which state that in fulfilling obligations to stakeholders, companies must still refer to moral values [23], [24]. Companies that can do this will get superior long-term performance. But in its development, a problem occurs when the bottom line is not seen as a unified whole. Social responsibility is only considered as a company's concern for environmental issues and social impacts, without seeing that the company's financial management is also part of the social responsibility. With the existence of empirical evidence that the disclosure of social responsibility affects the company's performance, the company can use the issue of environmental stewardship and social impact to improve the welfare of the company's owner. Social responsibility activities can be legitimate for companies to continue their business regardless of whether their business operations such as financial aspect are also managed based on ethical principles or not. This is also supported by the naturalistic fallacy that occurs in society which states that something good is correct. When the company actively discloses its social responsibility activities (desirable), it means that the company has behaved ethically in all its business practices (good). This condition can be exploited by managers who are transparent by carrying out social responsibility disclosures aimed at tricking stakeholders about the tax aggressiveness actions of the company.

Disclosure of social responsibility also shifted from the original goal as a reflection of the ethical behavior of the company to become a tool for the company's strategy for profit. The company uses social responsibility disclosure as a tool to shape the company's image as an institution responsible for its business practices. Social responsibility is seen as one of the competitive advantages in facing business competition. The company will finally make disclosures of social responsibility based on the consideration that the disclosure will contribute to the company's profit and not based on ethical considerations. Disclosure of social responsibility becomes a tool to meet the expectations of stakeholders so that the company can continue to run its business. In the case of opportunistic managers, disclosure of social responsibility is carried out to meet expectations as a company that cares about the community so the manager can continue to carry out his opportunistic behavior. By utilizing naturalistic fallacy, the company can obtain superior short-term benefits, but this can be counterproductive in the long run.

B. Tax Aggressiveness

Tax is a significant burden that affects the profits of the company. Hence, the company will always tend to reduce the burden. It can also be understood by regulators that incentives and loopholes in tax regulations provide options in the effort to minimize the amount of tax that must be paid. Efforts to minimize taxes are permitted within the legal corridor. However, these efforts become actions that are classified as tax aggressiveness when entering gray areas and thus potentially violating taxation rules [25], [26].

In this study, tax aggressiveness is an unethical action because the action is opportunistic and has the potential to violate applicable regulations. The act of tax aggressiveness is a deliberate act by taxpayers, who in an effort to minimize the amount of tax to be paid, intend to not comply with existing tax regulations. For the state, tax aggressiveness causes the state to suffer losses that are not calculated because of its nature which tends to break the rules. For companies, tax aggressiveness puts companies at risk of being subject to tax sanctions and can damage the company's reputation. The practice of tax aggressiveness tends to be rife in developing countries because it has low investor protection and weak taxation infrastructure so that opportunistic managers become more able to take tax aggressiveness actions.

C. Sustainability Report Assurance

The issue of assurance regarding disclosure of corporate social responsibility arises because of the credibility issue of the disclosure of social responsibility itself. With the various motivations for doing social responsibility, the disclosure of social responsibility can be misused by managers to benefit themselves. This has caused the credibility of corporate social responsibility disclosure to be questioned. Assurance will provide confidence that the disclosure of social responsibility information presented has credible information and is of value relevant to stakeholders in decision making. The assurance will limit the manager's opportunistic behavior because the disclosure of social responsibility by the manager will be validated by independent parties. The assurance can be a differentiator, whether the company is serious about disclosing social responsibility or just a tool to cover up fraud committed by the company.

The concept of assurance in disclosing social responsibility adopts the concept of an audit of financial statements that is using independent parties who have the competence to provide validation for disclosure of corporate social responsibility [27]. The assurance is based on AA1000AS guidelines and is carried out by an independent party who has a license as a sustainability reporting assurer.

D. Hypothesis Development

The results of previous studies found that corporate motivation to disclose social responsibility is not always based on ethical considerations. Disclosure of social responsibility that can lead to naturalistic fallacy in the community can be used by the company as a tool to trick the community against unethical actions of the company. Companies can disclose...
social responsibility so that they are categorized as companies that act ethically even though it is done to hide the tax aggressiveness actions, which are a reflection of unethical company actions. This condition can grow in developing countries because of the weak legal system and the low protection of investors [8]. The results of [28] found that companies that carried out aggressive tax avoidance were actively disclosing social responsibility. These results are also supported by [29], which found that there is a positive relationship between disclosure of social responsibility and tax aggressiveness. Based on this, the following hypothesis is created:

\[ H_1 : \text{Disclosure of social responsibility is positively associated with tax aggressiveness} \]

Social responsibility disclosure associations and tax aggressiveness can be influenced by certain contexts. Watson [25] found that the company's current and future financial performance affects the relationship between social responsibility and tax aggressiveness, while [30] found that assurance of social responsibility disclosure reports can reduce information asymmetry by moderating the relationship between disclosure of social responsibility and accuracy of earnings perceptions analysis. In this study, we argued that the assurance variable can mitigate the relationship between corporate social responsibility disclosure and tax aggressiveness. This is because companies that use assurance services for disclosure of social responsibility mean that the company is willing to be validated by a competent independent party. Only companies that are serious about disclosing their social responsibilities are willing to check their credibility. Companies with this type tend to limit the opportunistic manager's actions including tax aggressiveness. Acts of aggressiveness are considered as unethical actions that are counterproductive to the seriousness of the company in social responsibility. Based on these arguments, the following hypothesis is formulated:

\[ H_2 : \text{Assurance for disclosure of social responsibility mitigates the positive association of disclosure of social responsibility and tax aggressiveness} \]

### III. RESEARCH METHOD

This research was conducted on publicly traded companies listed on the Stock Exchange of Thailand (SET). The research sample is companies that issued stand-alone sustainability reports based on the Global Reporting Initiative (GRI) for the 2013-2018 period. There were 98 companies sampled with a total of 316 firm-observations. Disclosure of social responsibility is measured based on the disclosure index created based on a combination of the GRI G4 index and GRI Standard. During this period, GRI issued G4 guidelines (2013) and GRI standards (2016). Based on these two rules, the authors then created a disclosure index that is used to measure the social responsibility disclosure variable. Disclosure of social responsibility is measured by comparing the number of disclosure items reported by the company and the disclosure index. The tax aggressiveness variable is proxied by GAAP ETR [31] which is measured by dividing the total income tax burden by profit before tax. While the assurance of social responsibility disclosure variable is measured using a dummy variable, namely 1 if the company has an assurance report on the sustainability report that has been published and 0 if the company does not have an assurance report on the sustainability report that has been published. This study uses control variables which are company size, debt level, profitability, capital intensity ratio, and dummy industry [13], [12], [25], [32].

The research models used to test the hypotheses are listed below:

1. Model to test \( H_1 \)

\[ \text{TAG}_{it} = \alpha_0 + \alpha_1 \text{CSRI}_{it} + \alpha_2 \text{SIZE}_{it} + \alpha_3 \text{DER}_{it} + \alpha_4 \text{ROA}_{it} + \alpha_5 \text{CIR}_{it} + \alpha_6 \text{NS}_\text{Dummy}_{it} + \epsilon_{it} \]  

2. Model to test \( H_2 \)

\[ \text{TAG}_{it} = \alpha_0 + \alpha_1 \text{CSRI}_{it} + \alpha_2 \text{SRA}_{it} + \alpha_3 \text{CIR}_{it} + \alpha_4 \text{NS}_{it} + \alpha_5 \text{DER}_{it} + \alpha_6 \text{ROA}_{it} + \alpha_7 \text{CIR}_{it} + \alpha_8 \text{NS}_\text{Dummy}_{it} + \epsilon_{it} \]

### IV. RESULT

Based on the research sample used in this study, the descriptive statistics in Table I were obtained.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAG</td>
<td>316</td>
<td>0.145</td>
<td>0.165</td>
<td>0.095</td>
</tr>
<tr>
<td>CSRI</td>
<td>316</td>
<td>0.374</td>
<td>0.338</td>
<td>0.184</td>
</tr>
<tr>
<td>SIZE</td>
<td>316</td>
<td>13.427</td>
<td>13.502</td>
<td>1.978</td>
</tr>
<tr>
<td>DER</td>
<td>316</td>
<td>1.325</td>
<td>0.840</td>
<td>2.505</td>
</tr>
<tr>
<td>ROA</td>
<td>316</td>
<td>0.075</td>
<td>0.072</td>
<td>0.076</td>
</tr>
<tr>
<td>CIR</td>
<td>316</td>
<td>0.596</td>
<td>0.657</td>
<td>0.224</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>1 (%)</td>
<td>0 (%)</td>
<td>1 (%)</td>
<td>0 (%)</td>
</tr>
<tr>
<td>SRA</td>
<td>316</td>
<td>74 (23%)</td>
<td>242 (77%)</td>
<td>0.095</td>
</tr>
</tbody>
</table>

Based on Table I it can be seen that GAAP ETR has a mean (median) of 0.145 (0.165) on a scale of 0-1. Current corporate income tax rate in Thailand is 20%, higher than average tax rate in our sample indicating tax aggressiveness behavior. On the CSRI variable the observations show that the mean (median) is 0.374 (0.338) on a scale of 0-1. The level of disclosure of corporate social responsibility is low because the disclosure is still voluntary. In the SIZE control variable has a mean (median) of 13,427 (13,502), DER has a mean (median) of 1,325 (0.840), ROA has a mean (median) of 0.075 (0.072), and CIR has a mean (median) of 0.596 (0.657) whereas for the SRA dummy variable only 74 companies (23%) of the total sample did the assurance for sustainability reports published by the company.

Next, Table II reported the correlation of variables used in research using the Pearson correlation. The correlation results show that CSRI is negatively associated with GAAP ETR. These results indicate that the higher the level of social responsibility disclosure, the lower the company's effective tax.
rate or the higher the level of tax aggressiveness. In addition, Table II also shows the correlation between explanatory variables. The correlation is at a moderate level with the highest correlation between SRA and SIZE of 0.579 (p < 0.01). Researchers also calculated Variance Inflation Factor (VIF) in the regression model to test the multicollinearity between explanatory variables. Test results (not reported) indicate that the VIF value for each variable is < 10. This shows that there is no multicollinearity problem in the regression model.

The results of hypothesis testing are presented in Table III. In (1), the results of the hypothesis test show that CSRI variables are negatively associated with GAAP_ETR (β = -0.062, p < 0.05), which supports Hypothesis 1. This shows that the higher the disclosure of social responsibility, the greater is the tax aggressiveness by the company. The results of this study are in line with the results of [28] and [29] which state that companies that actively carry out social responsibility disclosures have high tax aggressiveness so as to have a low effective tax rate. With countries such as Thailand which have low taxation infrastructure and investor protection, managers’ opportunistic behavior is more difficult to control. The company then discloses social responsibility to hide tax aggressiveness. In addition, disclosure of social responsibility can also be used to neutralize and legitimize tax aggressiveness by companies. This condition is supported by the naturalistic fallacy that considers companies that actively carry out and express social responsibility to only provide unilateral claims that can be used opportunistically so that the truth is questioned. The result of hypothesis 2 supports [18] in a way that assurance of social responsibility report with business ethics or sustainability report could differentiate companies disclose responsibilities. Without assurance, companies are considered to provide unilateral claims that can be used opportunistically so that the truth is questioned. The result of hypothesis 2 supports [18] in a way that assurance of social responsibility report with business ethics or opportunistic consideration.

This research has several implications. First, stakeholders, especially in developing countries, need to be careful with the interests of obtaining a good image in the eyes of the community but becomes a reflection of the company's value in business practices. When ethical values become the basis for conducting business activities, the company will try to implement these values, including by limiting the practice of tax aggressiveness because it conflicts with ethical values. Assurances from external parties will provide validation of the company's claims as a company that cares about its social responsibilities. Without assurance, companies are considered to provide unilateral claims that can be used opportunistically so that the truth is questioned. The result of hypothesis 2 supports [18] in a way that assurance of sustainability report could differentiate companies disclose social responsibility report with business ethics or opportunistic consideration.
existence of naturalistic fallacy in disclosing social responsibility. Disclosure of social responsibility may indicate a company's concern for its social responsibility, but this does not necessarily indicate that the company has operated and managed its taxation ethically. Disclosure of social responsibility can also be used as a tool by companies to disguise or deceive stakeholders about tax aggressiveness. Second, the results of this study provide weaknesses of the stand-alone report that makes information partial and incomplete. Aggregated information can lead to naturalistic fallacy by drawing conclusions based only on one of the available information. The results of this study support integrated reporting so that stakeholders can see the company's activities comprehensively. Third, regulators need to encourage standardization in the disclosure of social responsibility and provide assurance that the disclosure is made. The results of this study indicate that the assurance can be an indicator to assess the seriousness of the companies in carrying out and expressing its social responsibility activities. Regulators also need to encourage the development of the assurance services profession for disclosure of corporate social responsibility that can help validate corporate social responsibility disclosures.

V. CONCLUSION

This study examines the association of social responsibility disclosure and tax aggressiveness and the role of assurance in the association. The results showed that the disclosure of social responsibility was positively associated with tax aggressiveness, but the positive association was weakened by the presence of assurance against sustainability reports. This research has limitations because it only focuses on companies that express their social responsibility through sustainability reports based on guidelines issued by GRI. Future studies can compare associations of social responsibility disclosures with different company disclosure media using other variables that can describe ethical behavior or corporate fraud. The scope of this research also needs to be expanded by doing so in other developing countries so as to provide a more comprehensive picture of the practice of disclosure of corporate social responsibility and ethical behavior. Research in developing countries can provide different research results due to differences in context with developed countries so that it can enrich the study of corporate social responsibility disclosure. In addition, subsequent researches can also add new variables that can moderate the relationship between disclosure of social responsibility and ethical behavior of companies.

ACKNOWLEDGMENT

This research was financially supported by the Directorate of Research and Development of Ministry of Research, Technology and Higher Education of the Republic of Indonesia.

REFERENCES


World Academy of Science, Engineering and Technology
International Journal of Economics and Management Engineering
Vol:13, No:11, 2019

Open Science Index, Economics and Management Engineering Vol:13, No:11, 2019 waset.org/Publication/10010871

L. Preuss, “Tax avoidance and corporate social responsibility: you can’t do both, or can you?” Corporate Governance, vol. 10, no.4, pp. 365-374, 2010.


